

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An antenna enabling the shaping of at least one beam of radioelectric waves (4, 5, 61, 62, 91, 92) of at least one determined wavelength, of the type comprising at least one radiating element (2) the waves, ~~preferably passive,~~ placed in a set of wires or bars (1) reflective of the wave and substantially parallel to one another, made of a Photonic Band Gap (PBG) material and forming a determined structure, said determined structure including defects so as to shape said at least one beam in a direction relative to the position and/or of the configuration of said defects,

~~characterised in that~~ wherein said wires or bars and the defects are arranged on a set of N concentric closed curves of a plane, N being greater than or equal to two, the radiating element being arranged inside the innermost curve and the distance between the curves is smaller than a quarter of the wavelength, the length of a wire/bar being greater than or equal to half the wavelength.

2. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein the curves are selected among the circles, the ellipses, the cycloids and, ~~preferably,~~ are all circles, the radiating element being placed substantially in the common centre of said circles.

3. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein the wires/bars or defects adjoining a given curve are arranged in transversally equidistant locations.

4. (currently amended) The ~~An~~-antenna according to claim 3, ~~characterised in that~~ wherein the transversal distance of the adjoining wires/bars or defects are all equal for all the curves.

5. (currently amended) The ~~An~~-antenna according to claim 4, ~~characterised in that~~ wherein the curves are circles and that the wires/bars or defects are arranged in at least two concentric circles around the radiating element substantially central according to a constant transversal periodic distribution, equal for all the circles.

6. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein the wires/bars or defects are arranged along distribution axes running through the radiating element and in the plane, in points corresponding to the crossing of the curves and of the distribution axes.

7. (currently amended) The ~~An~~-antenna according to claim 6, ~~characterised in that~~ wherein the distribution axes are spaced regularly in the plane over 360° and divide it into equal angular sectors, the value of an angular sector being ~~preferably~~ 22.5° or a multiple of 22.5° .

8. (currently amended) The ~~An~~-antenna according to claim 7, ~~characterised in that~~ wherein the curves are circles and that the wires/bars or defects are arranged in at least two concentric circles around the radiating element substantially central according to a constant angular periodic distribution, equal for all the circles.

9. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein the radiating element is omnidirectional and is ~~preferably~~ a dipole, said dipole being than arranged substantially parallel to the wires/bars.

10. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein the wires/bars are straight.

11. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein the wires/bars are curved.

12. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein said defects are realised by removing at least partially certain of said wires/bars, said at least one beam being shaped in a direction relative to the position and/or of the configuration of the wires/bars withdrawn.

13. (currently amended) The ~~An~~-antenna according to claim 1, ~~characterised in that~~ wherein at least certain of said wires/bars are each formed of at least two conductive segments, the maximum length of a segment being smaller than a quarter of the wavelength and ~~preferably~~ smaller than or equal to the tenth of the wavelength, the adjoining segments of a wire/bar being separated by insulators, each wire/bar with several insulated segments therebetween, designated discontinuous wire/bar (11), being transparent for the wave and equivalent to the defect of a wire/bar at least partially withdrawn.

14. (currently amended) The ~~An~~-antenna according to claim 13, ~~characterised in that~~ wherein all the wires/bars are wires/bars with several segments.

15. (currently amended) The ~~An~~-antenna according to claim 13, ~~characterised in that~~ wherein at least one of the insulators separating two adjoining segments in a wire/bar comprises or is formed of a switchable active component which ~~may~~ ~~adopt~~ adopts at least one first conductive state for the wave, wherein the wire/bar with several segments behaves like a reflector, designated continuous wire/bar (10), and a second insulating state for the wave wherein the wire/bar with several segments is transparent for the wave and equivalent to the defect of a wire/bar at least partially withdrawn, and in that said antenna includes moreover control means of said active components, enabling to force certain of said wires/bars with several segments to behave like discontinuous wires/bars (11), said at least one beam being shaped in a direction relative to the position and/or the configuration of the discontinuous wires/bars.

16. (currently amended) The ~~An~~-antenna according to claim 15, ~~characterised in that~~ wherein in a wire/bar with segments and active switching components, the control is conducted by section(s) formed of a sub-assembly of adjoining segments of the assembly of the segments of the wire/bar, whereas the sub-assembly ~~may include~~ includes from two up to the total number of segments of the wire/bar, the components separating the segments of a section being placed into their first state, the other components being in the second state, in order to be able moreover to direct the beam(s) in height relative to the plane.

17. (currently amended) The ~~An~~-antenna according to claim 15, ~~characterised in that~~ wherein the control means of the active components constitute shaping and switching means between at least one first beam and at least one second beam, so that said antenna is a beam-switching antenna.

18. (currently amended) The antenna ~~Antenna~~ according to claim 1, ~~characterised in that~~ wherein it is in a public or private civilian telecommunication network.

19. (currently amended) A base transceiver station of a radiocommunication system with mobile stations, ~~characterised in that~~ wherein it includes at least one beam-switching antenna according to claim 17.

20. (new) The antenna according to claim 1, wherein the radiating element is passive.